



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Nicholas D. Spencer and Seunghwan Lee

Serial No.: 10/511,121

Art Unit: Not Yet Assigned

Filed: October 12, 2004

Examiner: Not Yet Assigned

For: *ENVIRONMENTALLY COMPATIBLE ADDITIVES FOR AQUEOUS LUBRICANTS*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

Pursuant to 37 C.F.R. §1.56 and 37 C.F.R. §1.97, Applicants submit an Information Disclosure Statement, including three (3) pages of Form PTO-1449 and a copy of each document cited therein.

This Information Disclosure Statement is being filed under 37 C.F.R. § 1.97(b) prior to a first Office Action on the merits. It is believed that no fee is required with this submission. However, should a fee be required, the Commissioner is hereby authorized to charge any required fees to Deposit Account No. 50-3129.

U.S. Patents

<u>Number</u>	<u>Issue Date</u>	<u>Patentee</u>	<u>Class/Subclass</u>
5,462,990	10-31-1995	Hubbell, et al.	525/54.1
5,536,573	07-16-1996	Rubner, et al.	428/378
5,627,233	05-06-1997	Hubbell, et al.	525/54.1

Foreign Documents

<u>Number</u>	<u>Publication Date</u>	<u>Patentee</u>	<u>Country</u>
WO 98/47948	10-29-1998	California Institute of Technology	PCT
WO 00/65352	11-02-2000	Eidgenossisch Technische Hochschule Zurich	PCT

Publications

BASU et al., "Fretting wear behavior of TiB₂-based materials against bearing steel under water and oil lubrication" *WEAR*, 250: 631-41(2001).

CHEN et al., "The difference in running-in period and friction coefficient between self-mated Si₃N₄ and SiC under water lubrication" *Tribology Letters*, 11(1): 23-28 (2001).

DUAN and LEI, "The effect of particle size on the lubricating properties of colloidal polystyrene used as water based lubrication additive" *WEAR*, 249(5-6): 528-32 (2001).

FRANCISCO et al., "Multilevel solution of the elastohydrodynamic contact for the water lubricated silicon carbide 3D line contact" *Tribology Transactions*, 45(1): 110-16 (2002).

HOLLINGER et al., "High-pressure lubrication with lamellar structures in aqueous lubricant" *Tribology Letters*, 9(3-4): 143-151 (2000).

JAY et al., "Comparison of the boundary-lubricating ability of bovine synovial fluid, lubricin, and healon" *J. Biomed. Mat. Res.*, 40(3): 414-418 (1998).

LEI et al., "Tribological behavior of fullerene-styrene sulfonic acid copolymer as water-based lubricant additive" *WEAR*, 252(3-4): 345-50 (2002).

PLAZA et al., "Tribological performance of some polyoxyethylene dithiophosphate derivatives water solutions" *WEAR*, 249 (12): 1077-89 (2001).

RATOI-SALAGEAN et al., "The design of lubricious oil-in-water emulsions" *Proceedings Inst. Mech. Engin. Part J: Journal Engin. Tribology*, 211(J): 195-208 (1997).

RATOI-SALAGEAN et al., "Optimizing film formation by oil-in-water emulsions" *Tribology Transactions*, 40(4): 569-78 (1997).

REGENAUER-LIEB et al., "The initiation of subduction: Criticality by addition of water?" *Science*, 294(5542) 578-80 (2001).

SAITO et al., "Chemical wear of sintered Si_3N_4 hBN and Si_3N_4 -hBM composites by water lubrication" *WEAR*, 247(2): 223-30 (2001).

SCHWARZ and HILLS, "Surface-active phospholipids as the lubricating component of lubricin" *Brit. J. Rheumatology*, 37(1): 21-26 (1998).

SMITH et al., "Does additional lubrication affect condom slippage and breakage?" *Int. J. STD & AIDS*, 9(6):330-335 (1998.)

UMEHARA and KATO, "The effect of initial surface roughness on friction of self-mating silicon nitride in water" *J. Japan. Soc. Tribologists*, 42(11): 879-85 (1997).

VEITH, "Tire wet traction - Explaining performance variation using the 'criticality' concept" *Rubber Chem. Technol.*, 69(5): 858-73 (1996).

WANG et al., "Study of the key problems in a water hydraulic piston pump and its applications" *Indust. Lubric. and Tribology*, 53(5): 211-16 (2001).

WIDMER et al., "Influence of polymer surface chemistry on frictional properties under protein-lubrication conditions: implications for hip-implant design" *Tribology Letters*, 10(1-2): 111-16 (2001).


XIONG and GE, "Friction and wear properties of UHMWPE/ Al_2O_3 ceramic under different lubricating conditions" *WEAR*, 250: 242-45 (2001).

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Remarks

This statement should not be interpreted as a representation that an exhaustive search has been conducted or that no better art exists. Moreover, Applicants invite the Examiner to make an independent evaluation of the cited art to determine its relevance to the subject matter of the present application. Applicants are of the opinion that their claims patentably distinguish over the art referred to herein, either alone or in combination.

Respectfully submitted,


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Dated: February 2, 2005

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Substitute for form 1449A/PTO		Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Application Number	10/511,121	
		Filing Date	October 12, 2004	
		First Named Inventor	Nicholas D. Spencer	
		Group Art Unit		
		Examiner Name		
Sheet	of	3	Attorney Docket Number	ETH 110

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	US Patent Document		Name of Patentee or Applicant of Cited Document	Date of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code ² (if known)			
J.S.		5,462,990		Hubbell, et al.	10-31-1995	
		5,536,573		Rubner, et al.	07-16-1996	
		5,627,233		Hubbell, et al.	05-06-1997	

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		Office. ³	Number ²	Kind Code ⁵ (if known)				
			WO 98/47948		California Institute of Technology	10-29-1998		
			WO 00/65352		Eidgenossisch Technische Hochschule Zurich	11-02-2000		

Examiner's Signature		Date Considered	
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¹ Unique citation designation number ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant to place a check mark here if English language Translation is attached.

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OTHER ART – NON PATENT LITERATURE DOCUMENTS			
Examiner's Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
		BASU et al., "Fretting wear behavior of TiB ₂ -based materials against bearing steel under water and oil lubrication" <i>WEAR</i> , 250: 631-41(2001).	
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✓		SCHWARZ and HILLS, "Surface-active phospholipids as the lubricating component of lubricin" <i>Brit. J. Rheumatology</i> , 37(1): 21-26 (1998).	
✓		SMITH et al., "Does additional lubrication affect condom slippage and breakage?" <i>Int. J. STD & AIDS</i> , 9(6):330-335 (1998.)	
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